Every Student Counts

Middle School Professional Development Guide
Year 1 - Day 2

Iowa Department of Education

Middle School Session –Facilitator Plan
Year 1 - Day 2

Content Goal:
NCTM Algebra Standards
Understand patterns, relations, and functions

Process Focus:
Representation
Create and use representations to organize, record, and communicate mathematical ideas

Overall Teaching Goal: Teaching and learning mathematics through problem solving

Activity	Description for Facilitator	Time (Min)	Teacher Masters (TM) & Materials
1. Welcome and Opening Activity	1. Goals 2. Patterns and Functions 3. Connections 4. Overview of year one 5. Overview of day two 6. Model 5 minute distributed practice activities – patterns and functions	20	**TM 1:** Year One Outline **TM 2:** Daily Overview **TM 3:** Year One Day 2 Agenda **TM 4**:Meaningful Distributed Practice (MDP) of Concepts, Skills, and Problem-Solving **TM 5**: MDP Explanations **TM 6**: MDP Activities – Algebra ideas • TeachTimer
2. Homework Connections	1. Discuss Principle Focus – Connection 2. In table groups answer the question "How does this process standard affect the curriculum, instruction, and assessment in middle school mathematics?" 3. Share few ideas from each team with the whole group	20	• Principles and Standards for School Mathematics (PSSM) • PSSM Quick Reference Guide

Activity	Description for Facilitator	Time (Min)	Teacher Masters (TM) & Materials
3. Data Analysis	1. Pre and Post-test Data Analysis: Building Teams and AEA/U8 2. Using Data Analysis Questions	30	**TM 7:** Survey Test Results – Every Student Counts 8th Grade State Results 2003 – 2004 **TM 8:** Analyzing and Reporting Every Student Counts Data **TM 8 (Overhead):** Analyzing and Reporting Every Student Counts Data
4. Meaningful Distributed Practice Planning	1. Research link 2. Examine building goals 3. Model distributed practice activities – graph stories 4. Examination of components of meaningful distributed practice 5. Design MDP for big ideas/goals	55	**TM 9:** MDP Activities – graph pictures • TeachTimer
5. Problem-Based Instructional Task	1. Understanding Problem-based Instructional Tasks 2. You Make the Call 3. Tie to Algebra Reading 4. Process Lesson 5. Differentiation 6. Video Processing	150	**TM 10:** Problem-Based Instructional Task Components **TM 11:** Lesson Plan – You Make the Call **TM 12 –** You Make the Call Overhead **TM 13:** What are Students/Teachers Doing? • Graphing Calculator • Graph Paper
6. Station Lesson Sharing	1. Form groups to share lessons participants taught • Take turns telling about the lessons • Take turns talking about student work 2. Share out learnings with entire group. 3. Collect lesson information and student work	30	

Activity	Description for Facilitator	Time (Min)	Teacher Masters (TM) & Materials
7. Closure	1. Assignments 2. Evaluation	15	**TM 14:** Assignment Sheet **TM 15:** Evaluation Form

Facilitator's Tool for Planning the Session

What is the background reading?

- Bring five copies of PBIT station lesson plans to share.
- Bring 5 copies of selected student work from data station PBIT (one representing a low level student response, one middle and one high level student response).
- Read about connections (PSSM pp. 274 - 279 and pp. 64 – 66)
- Read Teacher Story 5 (Green problem solving book, pp. 219 – 225)

What equipment and materials should **participants** bring?

- Information from Station Lessons

What Teaching Masters need to be copied?

Handouts:

TM 1: Year One Outline
TM 2: Daily Overview
TM 3: Year One Day 2 Agenda
TM 4:Meaningful Distributed Practice (MDP) of Concepts, Skills, and Problem-Solving
TM 5: MDP Explanations
TM 6: MDP Activities – Algebra ideas
TM 7: Survey Test Results – Every Student Counts 8th Grade State Results 2003 – 2004
TM 8: Analyzing and Reporting Every Student Counts Data
TM 9: MDP Activities – graph pictures
TM 10: Problem-Based Instructional Task Components **TM 11:** Lesson Plan – You Make the Call **TM 12 –** You Make the Call Overhead **TM 13:** What are Students/Teachers Doing? **TM 14:** Assignment Sheet
TM 15: Evaluation Form

What Teaching Masters need to be copied for presenters?

TM 1: Year One Outline
TM 2: Daily Overview
TM 3: Year One Day 2 Agenda
TM 4:Meaningful Distributed Practice (MDP) of Concepts, Skills, and Problem-Solving
TM 5: MDP Explanations
TM 6: MDP Activities – Algebra ideas
TM 7: Survey Test Results – Every Student Counts 8th Grade State Results 2003 – 2004
TM 8: Analyzing and Reporting Every Student Counts Data
TM 8 (Overhead): Analyzing and Reporting Every Student Counts Data
TM 9: MDP Activities – graph pictures
TM 10: Problem-Based Instructional Task Components **TM 11:** Lesson Plan – You Make the Call **TM 12 –** You Make the Call Overhead **TM 13:** What are Students/Teachers Doing? **TM 14:** Assignment Sheet

Teaching supplies/materials/technologies

- TeachTimer
- Principles and Standards for School Mathematics (PSSM)
- PSSM Quick Reference Guide
- Graphing Calculator
- Graph Paper

Activity 1: Welcome and Opening Activity

Time: 20 minutes

Overview and Rationale:
This activity connects the day with the goals for the year. It will provide an opportunity to relate daily activities to the year-long goals and activities.

Conducting the Activity:

1 Goals
- Remind participants of the big picture for the year
- Point out where we've been and where we're going
- Emphasize the NCTM Content Standards and Process Standards of the day

2 Go through Year 1 Day 2 Agenda handout
- Briefly go through agenda
- Remind participants of the main themes of Every Student Counts
- Point out how those themes will be applied to the goals and focus areas
- Use the Quick Reference Guide to locate the NCTM Standards being highlighted – Patterns and Functions

3 Discuss Meaningful Distributed Practice
- Review components
- Do MDP activities using 5-minute timer to show they can be done in 5 minutes
- Two websites that have a online function machines that could be used are
  - http://www.amblesideprimary.com/ambleweb/mentalmaths/functionmachines.html .
  - http://nlvm.usu.edu/en/nav/frames_asid_191_g_3_t_1.html

Materials

TM 1: Year One Outline
TM 2: Daily Overview
TM 3: Year One Day 2 Agenda
TM 4: Meaningful Distributed Practice (MDP) of Concepts, Skills, and Problem-Solving
TM 5: MDP Explanations
TM 6: MDP Activities – algebra

- TeachTimer

TM 1

Year One Outline
2004-2005

	Day 1 September 14/15	Day 2 October 26/27	Day 3 February 1/2	Day 4 April 26/27
NCTM Content Standard	Algebra	Algebra	Algebra	Algebra
	Understand patterns, relations, and functions	Understand patterns and functions	Represent and analyze mathematical situations and structures using algebraic symbols	Represent and analyze mathematical situations and structures using algebraic symbols
NCTM Content Standard 2		Algebra		Algebra
		Represent and analyze mathematical situations and structures using algebraic symbols		Analyze change in various contexts
Mathematical Activities	Represent, analyze, and generalize patterns with tables, graphs, words, symbolic rules Relate and compare different representations for relationships Explore linear and nonlinear functions	Relating data and building goals to distributed practice Distributed Practice Development Patterns and Functions Standards-based mathematics classroom	Problem solving relating algebra to concrete representations Modeling and Solving Problems using Technology	Discuss Working Inside the Black Box Representing and Analyzing mathematical situations using symbols Special Education connections Modeling and Solving Problems using Technology
NCTM Process Standard	Representation	Connections	Reasoning and Proof	Problem Solving
Assessment		Review post-test data		Working Inside the Black Box
Technology/ Manipulative Tools		VCR	Graphing Calculator	Graphing Calculator

TM 2

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Every Student Counts means . . .

Teach for Understanding and Focus on Meaning

Problem-Based Instructional Tasks Teaching through Problem Solving	Meaningful Distributed Practice of Concepts, Skills, & Problem Solving

Today's Goals . . .

Content Goal: Algebra
Process Goal: Connections

Today's Objectives . . .

- *Understand patterns and functions*
- *Represent and analyze mathematical situations and structures using algebraic symbols*

TM 3

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Every Student Counts
Agenda - Middle Grades Session
October 26 & 27, 2004

Goals:

1. Understanding patterns and functions (algebra standard)
2. Recognize and use connections among mathematical ideas (connections standard)
3. Represent and analyze mathematical situations and structures using algebraic symbols (algebra standard)

Agenda:

1. Welcome and Opening Activity
2. Homework connections
3. Data analysis
4. Meaningful Distributed Practice
    a. Data/Building Goals/connection to Distributed Practice
    b. Our Big Idea – Patterns and Functions
    c. Develop Meaningful Distributed Practice for individual sites
5. Problem Based Instructional Task
    a. Process Lesson
    b. Video
6. Sharing station lessons
7. Evaluation and homework.
    - Homework: Read: Chapter 1 in Teaching Mathematics Through Problem Solving (p. 3 – 13)
    - Read Reasoning in PSSM (p. 262-267)
    - Design Distributed Practice Activities

TM 4

Meaningful Distributed Practice of Concepts, Skills, and Problem-Solving

- Help students develop a deep understanding of a BIG IDEA
- Use problems and activities that help students learn to use multiple representations, and learn to use multiple reasoning strategies
- Help students develop a deep understanding so that they can use the representations and reasoning flexibly and fluently
- Use problems from a variety of contexts so students learn when it makes sense to apply this BIG IDEA in everyday life.

TM 5

Distributed Practice of Concepts, Skills and Problem Solving

What is the Research Rationale?

Long-term retention is best served if assignments are spread out in time rather than concentrated within short intervals (Iowa Content Network, http://www.state.ia.us/educate/ecese/tqt/tc/prodev/mathematics.html).

What Does Distributed Practice for Concepts and Problem Solving Look Like?

Distributed practice is consistent practice distributed over a long period of time. It can be presented in brief (about five minutes) problem solving and/or conceptual activities three to five times a week throughout the school year. These instructional activities should reinforce the BIG IDEA that you have chosen for your building improvement plan for Every Student Counts. The problems and activities that you use for distributed practice should be chosen to help students develop a deep understanding of that BIG IDEA.

These problems and activities should be student-centered, in the sense that the students derive their own ways to model, to reason with, and to explain the problems. The problems and activities should include a variety of connections to real-world situations, encourage the use of a variety of models or representations, and should allow for a variety of reasoning or solution strategies. Ask for two, or possibly three, explanations of the problem. Summarize by briefly highlighting the different representations and reasoning strategies that were used.

What are the Purposes of Distributed Practice?

To help students develop a deep understanding of a BIG IDEA,

1. the problems and activities should help students
    - learn to use multiple representations, and
    - learn to use multiple reasoning strategies

2. with such deep understandings that they can use the representations and reasoning
    - flexibly, and
    - fluently.

3. In addition, by using problems from a variety of contexts, the students should learn when it makes sense to apply this BIG IDEA in everyday life.

TM 6

SAMPLE DISTRIBUTED PRACTICE ACTIVITIES FOR ALGEBRA

Representing with a table Have a student show the table they made and discuss different ways in which the students determined their answers.

- It costs an $8 fee plus $5 for each hour to rent a sailboat at the lake. Make a table to show how much it costs if you rent the sailboat for 1 hour, 2 hours, 4 hours, and 10 hours
- It takes 2 tablespoons of cocoa mix to make a cup of hot chocolate. Make a table to show how many tablespoons it will take to make 1 cup, 2 cups, 6 cups, 15 cups.

Have one or two students explain how they used the table below to solve the problems

Miles	1/5	2/5	3/5	4/5	1	2	3
Cost	$2.75	$4.00	$5.25	$6.50	$7.75	$14.00	$20.25

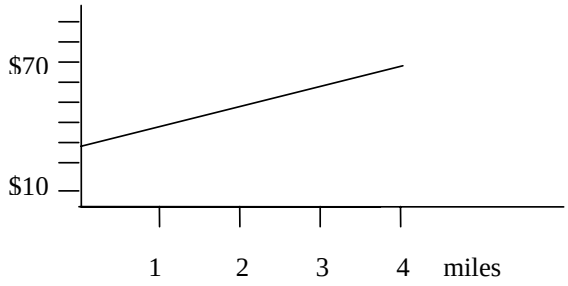
- Use the table above to decide how much it will cost to take a taxi 1 3/5 mile.
- Use the table above to decide how much it will cost to take a taxi 5 miles.

Representing with a graph Have a student show the graph they made and discuss different ways in which the students determined their answers.

- If you drive 65 miles per hour, about how long will it take to drive 300 miles?
- If you average only 40 miles per hour because of traffic, how long will it take you to drive 5/8 of a mile?

Have one or two students explain how they used the graph below to solve the problems.

In a fund raiser, Joan got some donations, and she will get additional donations for each mile she walks.



- About how much money will Joan raise if she walks 5 miles?
- About how many miles will she have to walk in order to raise $100?

Websites for distributed practice problems:

- http://standards.nctm.org/document/eexamples
- http://www.shodor.org (curriculum materials)
- http://www.aea11.k12.ia.us (Curriculum instruction; Mathematics; ITBS/ITED)

Activity 2: Homework Connections

Time: 20 minutes

Overview and Rationale:
This activity ties the homework into the work the participants are doing in and out of sessions.

Conducting the Activity:

1 Discuss Principle Focus
   - Participants discuss Process Standard – Connection in *Principles and Standards for School Mathematic* (pp. 274 to 279)

2 In table groups answer the question "How does this process standard affect the curriculum, instruction, and assessment in middle school mathematics?"

3 Share few ideas from each team with the whole group

Materials:

- Principles and Standards for School Mathematics (PSSM)
- PSSM Quick Reference Guide

Activity 3: Data Analysis

Time: 30 minutes

Overview and Rationale:

Participants will examine data from state-wide assessments.

Conducting the Activity

1 Teams will examine Pre and Post-test Data Analysis by building teams and AEA/U8 teams.
2 Using Data Analysis Questions to develop

Materials:

TM 7: Survey Test Results – Every Student Counts 8th Grade State Results 2003 – 2004
TM 8: Analyzing and Reporting Every Student Counts Data
TM 8 (Overhead): Analyzing and Reporting Every Student Counts Data

TM 7

Survey Test - Every Student Counts
8th Grade State Results 2003 - 2004

Question Item	Type of Question	Student Correct Response - National	Results Pre Test	Results Post Test	Above National
1	number	65%	61%	75%	*
2	number	50%	27%	59%	*
3	number	38%	32%	52%	*
4	algebra	56%	52%	66%	*
5	number	35%	59%	63%	*
6	data analysis	36%	37%	50%	*
7	data analysis	65%	76%	78%	*
8	algebra	48%	47%	57%	*
9	geometry	32%	28%	38%	*
10	data analysis	62%	63%	68%	*
11	number, data analysis	31%	45%	43%	*
12	data analysis	23%	25%	32%	*
13	measurement	29%	24%	32%	*
14	algebra	25%	27%	44%	*
15	geometry, measurement	32%	24%	32%	
16	algebra	65%	65%	76%	*
17	algebra	50%	49%	60%	*
18	measurement	42%	61%	32%	
19	data analysis	58%	61%	63%	*
20	geometry	40%	19%	25%	
21	geometry, measurement	22%	10%	21%	
22	geometry	37%	28%	35%	
23	data analysis	54%	29%		
24	measurement	60%	34%	44%	
25	number	41%	29%	41%	

TM 8

Analyzing and Reporting Every Student Counts Data

Structured Response Sheet (Revised 2004)

District Name _____

School Name: _____

Data Analyzed By: _____

Data Collection Period: _____

Date of Analysis: _____

Type of Data Analyzed: (mark the data source you are analyzing)

Student Performance Data	Implementation Data	Other Data
___ ESC Test Data ___ ITBS ___ Grades/Progress Indicators ___ Diagnostic: _____ ___ Classroom: _____ ___ Screening: _____ ___ Other: _____	___ Questioning ___ Problem-Based Instructional Task ___ Distributed Practice ___ Multiple Representations ___ Multiple Reasoning Strategies ___ Other	___ Other: _____

1. What do you notice when you look at these data? What are you comfortable saying about student or staff performance based on these results?

2. What additional questions do these data generate?

3. What do these data indicate students need to work on? Based on these data, what can we infer that teachers need to work on?

4. What do the results and their implications mean for your school, district, or regional improvement plans?

Date shared with staff: _____

TM 8 (Overhead)

Analyzing and Reporting Every Student Counts Data

Structured Response Sheet (Revised October, 2004)

District Name

_____

School Name:

_____

Data Analyzed By:

_____

Data Collection Period:

_____

Date of Analysis:

_____

TM 8 (Overhead)

Analyzing and Reporting

Every Student Counts Data

Structured Response Sheet (Revised October, 2004)

Type of Data Analyzed: (mark the data source you are analyzing)

Student Performance Data	Implementation Data	Other Data
___ ESC Test Data	___ Questioning	___ Other:
___ ITBS	___ Problem-Based	_____
___Grades/Progress	Instructional Task	_____
Indicators ___	___ Distributed Practice	
___ Diagnostic: ___	___ Multiple	
___ Classroom: ___	Representations	
___ Screening: ___	___ Multiple Reasoning	
___ Other:	Strategies	
	___ Other:	

TM 8 (Overhead)

Analyzing and Reporting Every Student Counts Data

Structured Response Sheet (Revised October, 2004)

1. What do you notice when you look at these data? What are you comfortable saying about student or staff performance based on these results?

2. What additional questions do these data generate?

3. What do these data indicate students need to work on? Based on these data, what can we infer that teachers need to work on?

4. What do the results and their implications mean for your school, district, or regional improvement plans?

Activity 4: Meaningful Distributed Practice

Time: 55 minutes

Overview:
This activity provides examples and discussion of meaningful distributed practice. Meaningful distributed practice is one of the main components of the Every Student Counts program, along with teaching for understanding and problem-based instructional tasks. Participants have an opportunity to develop their own MDP activities based on their building's big idea.

Conducting the Activity:

1. Examine the research link regarding Meaningful Distributive Practice – look at the five representations of a function
2. Examine building goals to determine big ideas
3. Model distributed practice activities to meet a building goal of patterns and functions – graph stories found in *Navigating through Algebra in Grades 6 – 8* (pp. 27 – 35 and 78 – 79)
    - The main focus of this activity is to model classroom use of meaningful distributed practice. Thus, the discussion of the solutions should be very brief. Then, getting back to the role of teachers, have a brief discussion of why these problems are examples of meaningful distributed practice and how they contribute to the Big Idea identified at the site
4. Review **TM 4**: Components of Meaningful Distributed Practice
5. Participants work individually on developing meaningful distributed practice problems.

Materials:

TM 9: MDP Activities – graph pictures

- TeachTimer

TM 9

John and his father participate in a 100-meter race. John starts the race 3 seconds after his father began to run. The graph provides information about how far John and his father ran over time.

Write a story about who won the race; be descriptive about how the race was run.

If the two lines describing how each person ran were parallel, what would the graph tell you about who won the race?

Activity 5: Problem-based Instructional Task Modeled

Time: 150 minutes

Overview and Rationale

At this point, participants will complete a Problem-Based Instructional Task (PBIT), tie to algebra reading, watch a standards-based class and analyze components needed for a standards-based classroom.

Conducting the Activity

1. Discuss components of PBIT
2. Participants work on PBIT *You Make the Call*
    a. Lesson plan is on Teacher Source web site: http://www.pbs.org/teachersource/mathline/lessonplans/atmp/call/call_procedure.shtm
    b. PDF lesson is available at following web site: http://www.pbs.org/teachersource/mathline/lessonplans/atmp/call/call_resources.shtm
3. Tie to Algebra Reading
4. Process Lesson
5. Discuss format for lesson plan with emphasis on differentiation
6. Examine a lesson with students to see what a PBIT looks like
    a. Watch Mathline video *You Make the Call* found at the following web site: http://www.pbs.org/teachersource/mathline/lessonplans/search_6-8.shtm
    b. Examine what students are doing and what teachers are doing in the class
    c. Discuss components found in class that are components of PBIT
7. Examine handouts *What Should I Look For in a Math Classroom*
    a. http://www.learner.org/catalog/resources/mathclass/student.htm
    b. http://www.learner.org/catalog/resources/mathclass/mathcl_one.html

Materials

- **TM 10:** Problem-Based Instructional Task Components
- **TM 11:** Lesson Plan – You Make the Call
- **TM 12 –** You Make the Call Overhead
- **TM 13:** What are Students/Teachers Doing?

- Mathline video – http://www.pbs.org/teachersource/mathline/lessonplans/search_6-8.shtm
- Handouts on what to look for in a math classroom
    - http://www.learner.org/catalog/resources/mathclass/student.htm
    - http://www.learner.org/catalog/resources/mathclass/mathcl_one.html

TM 10

PROBLEM-BASED INSTRUCTIONAL TASKS

- Help students develop a deep understanding of important mathematics
- Are accessible yet challenging to all students
- Encourage student engagement and communication
- Can be solved in several ways
- Encourage the use of connected multiple representations
- Encourage appropriate use of intellectual, physical and technological tools

TM 11

Problem-Based Instructional Task
You Make the Call

Lesson Topic: Multiple representations of linear functions
Grade Level/Course: 7^{th}-8^{th}
Objective: Relate and compare different forms of representation for a relationship
Pre-requisite Knowledge: Making and using tables to determine relationships between sets of data, making and using line graphs to explore to determine relationships between sets of data, finding a function rule relating sets of data (if appropriate for your students)
NCTM Standard(s):

NCTM Content Standards →	Number & Operations	Algebra	Geometry	Measurement	Data Analysis & Probability
NCTM Process Standards →	Problem Solving	Reasoning & Proof	Communication	Connections	Representation

Materials Needed:

Audio-visual: Overhead, transparencies of student pages, overhead graphing calculator (optional)
Manipulatives: chart paper, graph paper, markers, rulers or meter sticks
Literature:
Technology/Software: calculators, graphing calculators,
Other: Handouts – *Cell Phones Unlimited, A Phone Plan for You*

Main Lesson Development:

Launch: Students are given two plans for cell phones. The first plan is given in the form of a table and the second in a graph. **Students need to determine the better plan for Scott, a middle school student, and explain their reasoning.**

Show students the first plan, *A Phone Plan for You*, which is presented in table form. Allow each student to investigate the table and raise questions. Discuss what the table indicates and answer any questions. Possible questions: What does each column in the table stand for?

Show the second plan, *Cell Phones Unlimited*, which is presented in graphic form. Allow each student to investigate the graph and raise questions. Discuss what the graph indicates and answer any questions. Questions which might come are: What does the horizontal axis (x-axis) of the graph represent? What does the vertical axis (y-axis) of the graph represent?

Explore: Arrange students in groups of 3 or 4. Allow the groups time to interpret each of the two plans. Have chart paper and markers available. Instruct students to use these materials to record the information they extract from the table and graph, find any patterns they find, and determine a general rule for each representation. Each team should choose a method to compare the two plans and be prepared to present and explain their reasoning to the class. Question the groups based on how they are proceeding. For some groups you will need to ask several questions. For others, few, if any. Questions you might ask:
How much does each plan charge for each additional 10 minutes of time?
What is the charge for 0 minutes?
What is the relationship between the minutes of talking and the monthly cost?
How could you compare each plan using the same representation (either both with a chart or both with a graph)?

Share: When all groups are finished, display the charts and instruct each group to explain the strategies they used and their results. Compare alternate forms of function rules, address any incorrect mathematics in the solutions, and encourage discussion if groups disagree on the better plan.

Summarize and Clarify: Select one group's chart containing a table and one group's graph. Ask the students questions related to each. Each student should write the answer to each question asked. Examples of possible questions: How much would each plan charge for a call of 25 minutes? Ask for explanations of how students arrived at the answers. How much would each plan charge for 41 minutes? Which representation (table or graph) is easier to use to determine the solutions? How much would be charged for 300 minutes? Ask for explanations. If the students have determined formulas, ask them to use their formulas to determine the answers to the above questions. Ask them to explain how they arrived at their formulas. What is the better plan for Scott? Ask students to explain why they selected the plan they did.

Modifications/Extensions: A third plan could be added and the students asked to reexamine their recommendation for Scott. For example, the plan Yaks Forever offers a flat fee of $28 for up to 100 minutes of air time and $0.30 for each additional minute. Have the students make a chart and a graph for this plan and compare the three plans using charts, graphs, and formulas.

Students can research cell phone plans in the area and compare them in ways similar to those shown in the lesson.
Using graphing calculators (either the groups of the teacher on the overhead) is an effective way of showing various ways to represent linear situations. If the students (or teacher) enter data points in the LIST, they can investigate the resulting graphs (GRAPH). They can use the calculator to determine the resulting LinReg line (2nd STAT – CALC #5).
If the students enter the formulas in Y= and they can investigate the resulting graphs and tables. Using the TRACE function can approximate the intersection of the graphs and can

lead to a discussion about the meaning of that point. If students derive different versions of the rule for a particular plan, they can enter the various forms of the general rule in Y= and view the results in a table to see similarities.
Assign the students homework. Prepare a list of questions related to reading the data, reading between the data, and reading beyond the data.

TM 12

YOU MAKE THE CALL!

Which cell phone service will you purchase?

A) A Phone Plan for You

B) Cell Phones Unlimited

TM 13

What Are Students Doing?	What are Teachers Doing?

Activity 6: Station Lesson Planning

Time: 30 minutes

Overview and Rationale This section is a follow-up from day one.

Conducting the Activity

1. Form groups to share lessons participants taught
   - Take turns telling about the lessons
   - Take turns talking about student work
2. Share out learnings with entire group.
3. Collect lesson information and student work

Materials

Activity 7: Closure

Time: 15 minutes

Overview : This activity ties the day together.

Conducting the Activity

1 Review TM 1– Overview – goals and activities of the day using
2 Review TM 11 – Homework assignment for next meeting
3 Pass out TM 12 – Evaluation form

Materials
TM 1: Overview
TM 14: Assignment
TM 15: Evaluation

TM 14

ASSIGNMENTS FOR DAY THREE

- Read: Chapter 1 in Teaching Mathematics Through Problem Solving (pp. 3 – 13)
- Read about reasoning (PSSM pp. 262 - 267)
- Design Meaningful Distributed Practice activities to share at next class

TM 15

Every Student Counts

Participant Feedback **Date:**

What is your primary role?

_____AEA Team _____Urban 8 District Team

What were your key learnings from this session?

What questions do you have about the information and content presented and discussed during this session?

What considerations and concerns do you have about your individual use and follow-through of the information presented and discussed this session?

What considerations and concerns do you have about your team use and follow-through of information presented and discussed this session?